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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HANNAHER, CONSTANTINE

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/943,352

Applicant(s)

KARASAWA, HIROYUKI

Examiner

Constantine Hannaher

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-12 is/are rejected.
- 7) ☒ Claim(s) 5-8 and 13-16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3/1, 4/1, 9, 11/9, and 12/9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi *et al.* (JP01101540A) in view of Yip *et al.* (US005039854A) and Kulpinski *et al.* (US004778995A) and Conrad *et al.* (US004778994A).

With respect to independent claim 1, Hosoi *et al.*, Yip *et al.*, Kulpinski *et al.*, and Conrad *et al.* are considered to suggest a radiation image read-out method in view of the corresponding elements as explained in the rejection of the apparatus below. Hosoi *et al.* linearly irradiates a sheet 10, detects emitted light 15, and moves sheet 10, while Yip *et al.*, Kulpinski *et al.*, and Conrad *et al.* would have made it obvious to one of ordinary skill in the art at the time the invention was made to receive the emitted light 15 with one surface of a light guide device located at the recited location and guide the emitted light to a line sensor 17 arrayed along at least one end face of the light guide device.

With respect to dependent claim 3/1, Kulpinski *et al.* shows (Fig. 17) two sets of line sensors 26 and addition of the outputs of the photoelectric conversion devices (in element 60) is disclosed by Hosoi *et al.*

With respect to dependent claim 4/1, Kulpinski *et al.* shows (Fig. 16) the line sensor 26 located at one end face of the light guide device 24 and a face 70 formed as a light reflecting surface. It would have been obvious to one of ordinary skill in the art at the time the invention was made

that the end face opposite the single line sensor 26 suggested by Kulpinski *et al.* be formed as a light reflecting surface in view of the desire to not permit any collected emitted light to escape without detection, especially in view of the mirror coating 130 in Yip *et al.*

With respect to independent claim 9, Hosoi *et al.* discloses (Fig. 4) a radiation image read-out apparatus comprising (i) stimulating ray irradiating means 61 for linearly irradiating stimulating rays 63 onto an area of a stimuable phosphor sheet 10 causing the sheet to emit light 15, (iii) a line sensor 17 of the recited type, and (iv) sub-scanning means 11. The apparatus of Hosoi *et al.* does not include a light guide device, but a light guide device of the type recited is known from Yip *et al.* Yip *et al.* discloses a light guide device 132 (Fig. 8) located such that one surface stands facing the area of the stimuable phosphor sheet 118 exposed to the stimulating rays 116 and receives the emitted light and the received emitted light is converted into fluorescence and the fluorescence is guided toward the end faces of the light guide device (column 8, lines 36-52). Although Yip *et al.* discloses conversion of the emitted light into fluorescence, Conrad *et al.* shows that receiving emitted light and guiding it to an end face of a light guide device 34 is an art recognized equivalent to converting the emitted light to fluorescence and guiding the fluorescence to the end face (column 2, lines 56-61). Furthermore, Kulpinski *et al.* shows (Figs. 15-19) that a light guide device 24 in a radiation image read-out apparatus may have the line sensors 26 at any of a variety of end faces. In view of the high efficiency of the fluorescent light guide device of Yip *et al.*, and the art-recognized equivalence of a transparent light guide as shown by Conrad *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Hosoi *et al.* to have it comprise a light guide device between the stimuable phosphor sheet 10 and the line sensor 17 such that the line sensor 17 was arrayed along at least one end face of the light guide device in accordance

with the suggestion of Kulpinski *et al.* that the end face at which the line sensor is arrayed may be parallel to the main scanning direction corresponding to the **X** direction in Hosoi *et al.*

With respect to dependent claim 11/9, Kulpinski *et al.* shows (Fig. 17) two sets of line sensors **26**. An addition processing means **60** is disclosed by Hosoi *et al.*

With respect to dependent claim 12/9, Kulpinski *et al.* shows (Fig. 16) the line sensor **26** located at one end face of the light guide device **24** and a face **70** formed as a light reflecting surface. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the end face opposite the single line sensor **26** suggested by Kulpinski *et al.* be formed as a light reflecting surface in view of the desire to not permit any collected emitted light to escape without detection, especially in view of the mirror coating **130** in Yip *et al.*

3. Claims 2, 3/2, 4/2, 10, 11/10, and 12/10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi *et al.* (JP01101540A) in view of Yip *et al.* (US005039854A) and Kulpinski *et al.* (US004778995A).

With respect to independent claim 2, Hosoi *et al.*, Yip *et al.*, and Kulpinski *et al.* are considered to suggest a radiation image read-out method in view of the corresponding elements as explained in the rejection of the apparatus below. Hosoi *et al.* linearly irradiates a sheet **10**, detects emitted light **15**, and moves sheet **10**, while Yip *et al.* and Kulpinski *et al.* would have made it obvious to one of ordinary skill in the art at the time the invention was made to receive the emitted light **15** with one surface of a light guide device located at the recited location and convert the emitted light to fluorescence and guide the fluorescence to a line sensor **17** arrayed along at least one end face of the light guide device.

With respect to dependent claim 3/2, Kulpinski *et al.* shows (Fig. 17) two sets of line sensors 26 and addition of the outputs of the photoelectric conversion devices (in element 60) is disclosed by Hosoi *et al.*

With respect to dependent claim 4/2, Kulpinski *et al.* shows (Fig. 16) the line sensor 26 located at one end face of the light guide device 24 and a face 70 formed as a light reflecting surface. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the end face opposite the single line sensor 26 suggested by Kulpinski *et al.* be formed as a light reflecting surface in view of the desire to not permit any collected emitted light to escape without detection, especially in view of the mirror coating 130 in Yip *et al.*

With respect to independent claim 10, Hosoi *et al.* discloses (Fig. 4) a radiation image read-out apparatus comprising (i) stimulating ray irradiating means 61 for linearly irradiating stimulating rays 63 onto an area of a stimuable phosphor sheet 10 causing the sheet to emit light 15, (iii) a line sensor 17 of the recited type, and (iv) sub-scanning means 11. The apparatus of Hosoi *et al.* does not include a light guide device, but a light guide device of the type recited is known from Yip *et al.* Yip *et al.* discloses a light guide device 132 (Fig. 8) located such that one surface stands facing the area of the stimuable phosphor sheet 118 exposed to the stimulating rays 116 and receives the emitted light and the received emitted light is converted into fluorescence and the fluorescence is guided toward the end faces of the light guide device (column 8, lines 36-52). Furthermore, Kulpinski *et al.* shows (Figs. 15-19) that a light guide device 24 in a radiation image read-out apparatus may have the line sensors 26 at any of a variety of end faces. In view of the high efficiency of the fluorescent light guide device of Yip *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Hosoi *et al.* to have it comprise a light guide device between the stimuable phosphor sheet 10 and the line sensor 17 such

that the line sensor **17** was arrayed along at least one end face of the fluorescent light guide device in accordance with the suggestion of Kulpinski *et al.* that the end face at which the line sensor is arrayed may be parallel to the main scanning direction corresponding to the **X** direction in Hosoi *et al.*

With respect to dependent claim 11/10, Kulpinski *et al.* shows (Fig. **17**) two sets of line sensors **26**. An addition processing means **60** is disclosed by Hosoi *et al.*

With respect to dependent claim 12/10, Kulpinski *et al.* shows (Fig. **16**) the line sensor **16** located at one end face of the light guide device **24** and a face **70** formed as a light reflecting surface. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the end face opposite the single line sensor **26** suggested by Kulpinski *et al.* be formed as a light reflecting surface in view of the desire to not permit any collected emitted light to escape without detection, especially in view of the mirror coating **130** in Yip *et al.*

Response to Submission(s)

4. This application has been published as US2002/0024030A1 on February 28, 2002.

Allowable Subject Matter

5. Claims 5-8 and 13-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: although it is considered known that the individual photoelectric conversion elements of a line sensor may be too large depending on the manufacture to be tiled, for example, necessitating diverging light guides to accommodate individual strips of elements, nevertheless Kulpinski *et al.* would not lead one of ordinary skill in the art to consider such an arrangement necessary as recited

in dependent claims 5 and 13; although fiber optic light guides are considered to be known (especially as shown by element 26 in Ohyama *et al.*), since the applied references suggest exclusion of an optical system in view of the light pipe 126 of Yip *et al.*, the optical coupling of Kulpinski *et al.*, and the glass plate 30 of Conrad *et al.*, one of ordinary skill in the art lacks the motivation to include a pixilated light guide device as recited in dependent claims 6 and 14 or a light collecting optical system as recited in dependent claims 7 and 15 notwithstanding that Hosoi *et al.* discloses light collecting optical system 18.


Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (703) 308-4850. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ch
June 12, 2003


Constantine Hannaher
Primary Examiner